



Lower Purge Pressure for Shutdown

PRO Fact Sheet No. 109

Applicable sector(s):

Production Processing Transmission and Distribution

Partners reporting this PRO: Enron Gas Pipeline Group

Other related PROs: Redesign Blowdown Systems and Alter ESD Practices, Inject Blowdown Gas into Low Pressure Mains

Compressors/Engines	<input checked="" type="checkbox"/>
Dehydrators	<input type="checkbox"/>
Pipelines	<input type="checkbox"/>
Pneumatics/Controls	<input type="checkbox"/>
Tanks	<input type="checkbox"/>
Valves	<input type="checkbox"/>
Wells	<input type="checkbox"/>
Other	<input type="checkbox"/>

Technology/Practice Overview

Description

When individual compressors in a transmission compressor station are shut down for maintenance or operational standby, the compressor and associated piping are normally depressured. The methane-rich gas is usually vented into the atmosphere through a blowdown vent line.

This partner reported lowering the purge gas pressure by venting some of the high-pressure blowdown gas to the fuel gas system. By recovering a partial volume for fuel, less methane is vented into the atmosphere via the blowdown stack. This results in lower methane emissions and generates savings by using the blowdown gas for fuel to run other compressors at the station.

Operating Requirements

Pipes and valves may have to be installed to bleed gas from the compressor manifolds to the fuel gas line.

Applicability

This applies to any compressor stations that have some continuous fuel gas usage when compressors are shut down.

Methane Emissions Reductions

The methane emissions reductions are estimated using the Lessons Learned study *Reducing Emissions When Taking Compressors Off-Line*. Compressors that are depressurized to the atmosphere vent about 15 Mcf of methane. Depressuring to a 60 psig fuel system would recover about 12 Mcf of this gas. A six-compressor station with a total 42 compressor shutdowns will save about 500 Mcf per year. One partner has reported a methane emissions reduction of 1,994 Mcf per year for 4 locations.

Methane Savings: 500 Mcf per year

Costs

Capital Costs (including installation)

<\$1,000 \$1,000 – \$10,000 >\$10,000

Operating and Maintenance Costs (annual)

<\$100 \$100-\$1,000 >\$1,000

Payback (Years)

0-1 1-3 3-10 >10

Benefits

Reducing methane emissions was the primary benefit of the project.

Economic Analysis

Basis for Costs and Savings

The methane savings of 500 Mcf per year are based on a transmission compressor station with 6 compressors that are each shut down 7 times per year.

Discussion

The capital cost for piping and valves can range between \$900 and \$1,600 per compressor. Operating costs involved will be minimal to manually depressurize the compressor to the fuel gas system before fully depressuring to the blowdown line. At a price of \$3 per Mcf, methane savings of \$1,500 per year per station will pay back the investment in a little more than 3 years.